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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/694,675	10/24/2000	Kenji Itoh	2576-105	3217
6449	7590	06/06/2005	EXAMINER	
ROTHWELL, FIGG, ERNST & MANBECK, P.C. 1425 K STREET, N.W. SUITE 800 WASHINGTON, DC 20005			SOBUTKA, PHILIP	
			ART UNIT	PAPER NUMBER
			2684	

DATE MAILED: 06/06/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/694,675

Applicant(s)

ITOH ET AL.

Examiner

Philip J. Sobutka

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 January 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1, 3, 4 and 6-23 is/are allowed.
- 6) ☒ Claim(s) 5 and 24-26 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 October 2000 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 1/14/2004 6) ☐ Other:

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Pace (US 5,471,665).

Consider claim 5. Pace teaches a device comprising: an antenna for receiving an RF signal (Pace fig 11, item 310), a local oscillator, a first differential mixer for mixing the RF signal from the antenna with the local oscillator signal and producing a base band differential signal (i.e., the mixer produces two base band signals having a 180 degree phase difference) (Pace both I and Q see especially fig 11), a first low pass filter note that since it filters a differential signal, it would be a differential filter (Pace see fig 11, item 20), and base band circuitry for receiving the filtered base band signals (Pace see col 7, line 58 – col 8, line 40). Pace lacks a teaching of the base band circuitry only working with positive power supply. Official Notice is taken that it is well know to use base band circuitry with positive power. It would have been obvious to one of ordinary skill in the art to modify Pace to use positive power in the base band circuitry in order to utilize conventional power supply arrangement.

As to claim 24, note that Pace teaches a phase shifter for producing the first and second RF signals separated by 90 degrees and a second mixer and low pass filter signals (Pace fig 11).

As to claims 25,26 Pace lacks a teaching of the mixers being even harmonic mixers. Official Notice is taken that it is well known in the art to use even harmonic mixers. It would have been obvious to one of ordinary skill in the art to modify Pace to

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use the claimed mixers in order to ensure that odd harmonics were not introduced into the direct conversion base band.

Allowable Subject Matter

2. Claims 1,6-9,3,4,10-23 are allowed.

Consider claim 1. The nearest prior art as shown in Pace fails to teach the mixer and filter arrangement further including: a first inductor for passing and transmitting the first base band signal sent from the first mixer to the base band circuit; a second inductor for passing and transmitting the second base band signal sent from the first mixer to the base band circuit; and a capacitor coupled between the first and second inductors

Consider claims 3 and 10. The nearest prior art as shown in Pace fails to teach the mixer and filter arrangement wherein the first low pass filter has a cut off frequency lower than a channel next to a channel neighboring the desired channel.

Consider claim 10. The nearest prior art as shown in Pace fails to teach a device comprising an antenna for receiving a radio frequency signal including a plurality of channels; a local oscillator; a first differential mixer for mixing the RF with the LO signal to produce first and second differential base band signals, a first low pass filter of the differential type and a passive type for receiving the first and second base band signals from the first mixer; a second low pass filter of the passive type for receiving the first and second base band signal passed through the first low pass filter and having a cut off frequency higher than a cut off frequency of the first low pass filter; and a base band

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circuit for receiving the first and second base band signals passed through the second low pass filter.

Conclusion

3. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Philip J. Sobutka whose telephone number is 571-272-7887. The examiner can normally be reached on Monday-Friday 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Maung Nay can be reached on 571-272-7882. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9306 for regular communications and (703) 872-9306 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-4700.

Philip Sobutka

Pjs

December 14, 2003


NAY MAUNG
SUPERVISORY PATENT EXAMINER